

BEFORE THE PUBLIC SERVICE COMMISSION
OF THE STATE OF DELAWARE

IN THE MATTER OF THE APPLICATION OF)
DELMARVA POWER & LIGHT COMPANY FOR) PSC DOCKET NO. 13-115
AN INCREASE IN ELECTRIC BASE RATES)
AND MISCELLANEOUS TARIFF CHANGES)
(FILED MARCH 22, 2013))

DIRECT TESTIMONY OF
KARL R. PAVLOVIC
ON BEHALF OF
COMMISSION STAFF

AUGUST 16, 2013

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1
2 **I. INTRODUCTION**

3
4 **Q. PLEASE STATE YOUR FULL NAME, ADDRESS, AND OCCUPATION.**

5
6 A. My name is Karl Richard Pavlovic. My business address is 8100 Professional Place,
7 Suite 306, Hyattsville, MD 20785. I am a Senior Consultant with Snavelly King
8 Majoros & Associates, Inc. (“Snavelly King”), an economic consulting firm that
9 represents the interests of government agencies, businesses and individuals who are
10 consumers of telecom, public utility and transportation services. A summary of my
11 educational background, research, and related business experience is provided in
12 Appendix A. Appendix B contains a list of the regulatory projects and proceedings in
13 which I have participated and/or made an appearance.

14 **Q. FOR WHOM ARE YOU APPEARING?**

15 A. I am testifying on behalf of the Staff of the Delaware Public Service Commission.

16 **Q. WERE YOUR TESTIMONY AND EXHIBITS PREPARED BY YOU OR**
17 **UNDER YOUR DIRECT SUPERVISION AND CONTROL?**

18 A. Yes, they were.

19 **Q. HAVE YOU PREVIOUSLY APPEARED BEFORE THIS COMMISSION?**

20 A. No, but I did prepare testimony in the prior DPL electric case, PSC Docket 11-528 on
21 cost allocation and rate design issues which were resolved by a settlement between
22 and among the parties.

23 **Q. HAVE YOU PREVIOUSLY TESTIFIED IN REGULATORY**
24 **PROCEEDINGS?**

25 A. Yes. I have submitted testimony to the Federal Communications Commission, the
26 Federal Energy Regulatory Commission, the Alaska Public Utilities Commission, the

1 Corporation Commission of the State of Kansas, the Maryland Public Service
2 Commission, the North Dakota Public Service Commission, and the Public Service
3 Commission of the District of Columbia.

4 **Q. PLEASE SUMMARIZE YOUR QUALIFICATIONS?**

5 A. I received undergraduate and graduate degrees in Philosophy from Yale College and
6 Purdue University. By education and professional experience I have expertise in
7 formal and mathematical logic, statistics, economics, financial analysis,
8 econometrics, and computer modeling. I have gained knowledge in the areas of
9 commercial and industrial operations in the energy, transportation, and
10 telecommunications industries and familiar with a wide range of experimental and
11 investigative methods in science and engineering. For over 25 years I have served as
12 a consultant on the economics of regulated industries to clients in the public and
13 private sectors. In that capacity I have been responsible for the design and execution
14 of statistical, economic and financial analyses of discrete commercial operations,
15 individual firms, and industry sectors for use by management and counsel in
16 formulating and implementing commercial and litigation strategy. In a number of
17 cases, these analyses have been the basis for testimony by myself and others in
18 regulatory and court proceedings. My consulting assignments in the energy field
19 have included analyses of crude oil and petroleum product markets, the operations
20 and costs of petroleum pipelines, investigations of the operating and plant investment
21 costs and least cost planning of electric and natural gas systems, and all aspects of the
22 restructuring of electric markets.

1 **Q. PLEASE SUMMARIZE YOUR ELECTRIC REGULATORY EXPERIENCE.**

2 My electric regulatory experience has been primarily before the Public Service
3 Commission of the District of Columbia with regard to the Potomac Electric Power
4 Company (Pepco). I have testified in numerous cases regarding (a) planning reserve
5 margin, (b) “lost revenues” attributable to Demand-Side Management (“DSM”)
6 programs, (c) weather emergency response, (d) operational and financial issues with
7 regard to Pepco’s divestiture of its generating assets, the subsequent unbundling of its
8 retail rates, (e) performance of renewable and energy efficiency programs, (f) the
9 performance of Pepco’s transmission and distribution facilities, (g) the cost and
10 benefits of the Pepco-Conectiv merger, (h) the procurement of Standard Offer Service
11 (“SOS”) electric supply and retail SOS rates, (i) the need for new transmission lines
12 to serve load, and (j) issues of cost allocation, revenue requirement distribution, and
13 rate design. I also served for a number of years as the technical representative of the
14 Office of the People’s Counsel of the District of Columbia to Pepco’s Productivity
15 Improvement Working Group and on various member working groups within PJM.
16

17 **II. SCOPE OF TESTIMONY**

18 **Q. WHAT IS THE SCOPE OF YOUR TESTIMONY IN THIS PROCEEDING?**

19 A. I have been asked by PSC Staff to examine Delmarva’s assertions and proposals in this
20 proceeding regarding jurisdictional and class distribution costs and rate design.

21 **Q. HAVE YOU PREPARED ANY EXHIBITS IN SUPPORT OF YOUR**
22 **RECOMMENDATIONS?**

1 A. Yes. I have included five exhibits:

2 Exhibit KRP-1: Schedule (JCZ)-1

3 Exhibit KRP-2: Schedules (EPT)-1 through (EPT)-4

4 Exhibit KRP-3: Schedules (MCS)-1 and MCS-2

5 Exhibit KRP-4: Calculation of Staff Recommended Rates

6 Exhibit KRP-5: Billing Comparison for Staff Recommended Rates

7 **Q. HOW IS YOUR TESTIMONY ORGANIZED?**

8 A. My testimony is organized into four sections. In the first section I address the
9 relationship of cost allocation and rate design to revenue requirement recovery. In the
10 second section I address Delmarva's jurisdictional cost allocation procedures, Delmarva
11 witness Ziminsky. In the third section I will address Delmarva's class cost allocation
12 procedures, Delmarva witness Tanos. In the fourth section I address the rate design
13 proposals of Delmarva witness Santacecilia.

14 **III. SUMMARY OF TESTIMONY**

15 **Q. PLEASE SUMMARIZE YOUR TESTIMONY.**

16 A. Cost allocation and rate design bear directly on Delmarva's recovery of its revenue
17 requirement. If Delmarva's costs are not properly allocated to the Delaware Division
18 (jurisdiction), then it is more likely that Delmarva will either over or under recover its
19 revenue requirement since its jurisdictional costs will not be accurately reflected
20 among its Delaware customer classes.

21

1 Delmarva's jurisdictional study appears to develop accurately its Delaware jurisdictional
2 distribution costs.

3 Delmarva's failure to develop separate allocators for underground and overhead
4 facilities, use of demand allocators that do not accurately reflect class diversity on its
5 distribution system, and use of an arbitrary 50/50 weighting of demand allocators,
6 renders the study's class rates of return suspect. Thus, Delmarva's class cost study
7 should not be used to distribute the revenue requirement among the classes for rate
8 design purposes.

9 While flawed with regard to the principle of cost-causation, Delmarva's proposed rate
10 structure represents a transitional step towards a proper customer/demand rate structure.

11 My recommendations are:

- 12 • The Commission should accept the jurisdictional cost study as the basis
13 for determination of Delmarva's revenue requirement.
- 14 • The Commission should reject Delmarva's class cost study as the basis
15 for revenue requirement distribution and direct Delmarva to use the
16 current revenue distribution.
- 17 • The Commission should accept Delmarva's rate structure as a
18 transitional step towards a customer/demand rate structure.
- 19 • As explained in my testimony, in conjunction with these
20 recommendations, I recommend the Commission direct Delmarva to use
21 data from its newly deployed AMI meters (1) to develop more accurate
22 demand allocators for its class cost study and (2) to develop a

1 customer/demand rate structure for its Delaware service classifications.

2 **IV. DISCUSSION**

3 **COST ALLOCATION, RATE DESIGN, AND REVENUE REQUIREMENT**
4 **RECOVERY**

5 **Q. WHAT IS THE RELATIONSHIP BETWEEN COST ALLOCATION, RATE**
6 **DESIGN AND REVENUE REQUIREMENT RECOVERY?**

7 A. Conceptually the relationship is deceptively simple. If a utility's costs of providing
8 service are not accurately allocated to its rate classes and rate class costs are not
9 accurately reflected in the rate classes' tariff billing charges, then the utility will either
10 over or under recover its costs of service or revenue requirement. The less accurately
11 the costs are reflected in the rate classes' tariff billing charges the greater the utility's
12 under or over recovery of its costs will be. In regards to electricity, it is important to
13 distinguish between the production of electric energy on the one hand and the delivery
14 (transmission and distribution) of electric energy to customers on the other, because the
15 drivers of electric production costs are complex and difficult to forecast, while the
16 drivers of delivery costs are simple and relatively straightforward to forecast.

17 **Q. WHAT ARE THE COST DRIVERS OF ELECTRIC DELIVERY SERVICE?**

18 A. For transmission costs the single primary cost driver is the aggregate peak demand
19 (kilowatts) on the transmission system. For distribution costs the two primary cost
20 drivers are (1) the number of customers served by the distribution system and (2)
21 customer demand (kilowatts) on the distribution system. In this proceeding the revenue
22 requirement, class costs and tariff rates at issue concern the portion of Delmarva's

1 distribution system that serves Delaware customers. Consequently, the issue is whether
2 Delmarva's proposed cost allocations and tariff rates accurately reflect the distribution
3 customer costs and distribution customer demand costs of its Delaware customers and
4 thus minimize the likelihood of either under or over recovery of Delmarva's revenue
5 requirement.

6 **JURISDICTIONAL COST OF SERVICE STUDY**

7 **Q. WHY DOES DELMARVA PERFORM A JURISDICTIONAL ALLOCATION**
8 **STUDY?**

9 A. Delmarva operates its facilities as a single system that as a matter of geography and law
10 encompasses more than one regulatory jurisdiction. Accordingly, Delmarva recovers the
11 costs of its system in rates established by this Commission, the Maryland Public Service
12 Commission and the Federal Energy Regulatory Commission (FERC). Delmarva's
13 transmission facilities fall under the regulatory jurisdiction of the FERC and, although
14 owned by Delmarva, are under the control of PJM Interconnection, L.L.C., a FERC-
15 certified Regional Transmission Organization (RTO) and Independent System Operator
16 (ISO), per the FERC's rules, regulations and orders. Delmarva's transmission service
17 revenue requirement is recovered through rates set forth in PJM's Open Access
18 Transmission Tariff filed with the FERC. The remainder of Delmarva's system, its
19 distribution system, falls under the regulatory authority of this Commission and the
20 Maryland Public Service Commission and the costs of Delmarva's distribution system
21 must be allocated between those jurisdictions. To determine the cost of the portion of its
22 distribution system used to serve customers in its Delaware jurisdiction and to develop

1 its revenue requirement for that service, Delmarva performs a jurisdictional allocation
2 study.

3 **Q. HOW DOES DELMARVA DETERMINE THE COSTS OF SERVING ITS**
4 **DELAWARE CUSTOMERS?**

5 A. Delmarva performs a jurisdictional allocation study wherein it either (1) directly assigns
6 to the Delaware jurisdiction the accounting costs for those distribution facilities that are
7 used exclusively in providing distribution service to customers in Delaware or (2)
8 allocates to the Delaware jurisdiction a portion of the costs of its distribution facilities
9 that are used in common to provide service to customers in both Delaware and in
10 Maryland. “Direct assignment” and “allocation” are terms of art and the appropriate
11 processes and procedures for both direct assignment and allocation of facilities and costs
12 are set forth in the “Electric Utility Cost Allocation Manual” of the National Association
13 of Regulatory Utility Commissioners (NARUC).
14 Delmarva takes the standard approach of separating, directly assigning, its system-
15 wide distribution plant costs and expenses by FERC account and then allocating
16 general plant and general and administrative expenses to the distribution function.¹
17 Separated system-wide distribution costs and expenses are then either directly
18 assigned or allocated to the Delaware jurisdiction.² The results of this two-step
19 process are shown on page 1 of Schedule JCZ-1,³ summarized in rate base and
20 earnings items in columns (4) and (5). The separated total system distribution costs

¹ Ziminsky at 7, lines 12-20.

² Ziminsky at 7, line 21 to 8, line 1.

³ See Exhibit KRP-1

1 and expenses are in column (4); the Delaware jurisdiction distribution costs and
2 expenses are in column (5).

3 **Q. WHAT USES DOES DELMARVA MAKE OF THE JURISDICTIONAL**
4 **DISTRIBUTION COST STUDY?**

5 A. There are two. First, the cost study is used to develop Delmarva's proposed revenue
6 requirement. Delmarva uses the total rate base and earnings items on lines 16 and 35
7 of column (5) to develop its Delaware distribution revenue requirement, by first
8 applying various adjustments to those two items⁴ and then applying them to the
9 adjusted rate base and earnings items its requested rate of return and tax revenue
10 conversion factor.⁵ Second, the cost study is the basis of the class cost of service
11 study, which is used for rate design purposes. In its application Delmarva used a
12 jurisdictional study based on 12 months actual data for a test year ending 12/31/12⁶
13 for both its revenue requirement calculation⁷ and its class cost of service study.⁸

14 **Q. DO YOU HAVE ANY CRITICISMS OF THE JURISDICTIONAL COST**
15 **STUDY?**

16 A. I have reviewed the study's three major components: (1) separation by FERC account of
17 distribution costs and expenses, (2) functionalization and allocation of general plant and
18 administrative and general expenses to distribution, and (3) direct assignments and
19 allocations of distribution costs and expenses to the Delaware jurisdiction. Based on

⁴ Ziminsky, Schedule JCZ-1, page 2.

⁵ Ziminsky, Schedule JCZ-2.

⁶ Ziminsky at 4, lines 7-9 and Schedule JCZ-1, page 1.

⁷ Ziminsky, Schedule JCZ-1, page 2 and Schedule JCZ-2.

⁸ Tanos Schedule EPT-1.

1 that review, I have no criticisms of Delmarva's jurisdictional cost study and recommend
2 that Commission accept the jurisdictional cost study as the basis for determining
3 Delmarva's revenue requirement.

4 **CLASS COST OF SERVICE STUDY**

5 **Q. WHY DOES DELMARVA PERFORM A CLASS COST OF SERVICE STUDY?**

6 A. As I indicated earlier, Delmarva uses the class cost of service study in its rate design.
7 Specifically, the study's class rate of return results are used, first, to distribute the
8 revenue requirement to the customer classes and, then, to calculate the tariff rate
9 elements for the individual customer classes. The study's class customer and demand
10 costs are also used in the development of the tariff rate elements.

11 **Q. SHOULD THE CLASS COST STUDY REFLECT THE ADJUSTED TEST**
12 **YEAR OR THE UNADJUSTED TEST YEAR?**

13 A. If the class cost study is used as the basis of rate design – for both class revenue
14 requirement distribution and determination of the tariff rate component charges – the
15 class cost study should reflect the adjusted test year costs rather than the unadjusted
16 costs that Delmarva has used. If the plant adjustments to rate base and/or adjustments to
17 expenses substantially and disproportionately impact one customer class, function
18 and/or classification, the costs and rates that result from use of the unadjusted test year
19 costs will not accurately reflect Delmarva's customers cost of service during the rate
20 effective period. This is a refinement that most companies do not observe in their class
21 cost studies.

22 **Q. HAVE YOU REVIEWED THE CLASS COST OF SERVICE STUDY?**

1 A. Yes. The class cost study is described by Delmarva Witness Tanos⁹ and presented in
2 Mr. Tanos' Schedules EPT-1 through EPT-4. I have included those schedules in Exhibit
3 KRP-2. In discovery I requested and was provided the study in its electronic format and
4 the analyses underlying the allocators used in the study as well as explanations of the
5 allocators used in the study. Delmarva takes the standard approach of functionalizing its
6 distribution costs based on FERC account, then classifying the functionalized costs as
7 either demand-related or customer-related, and finally allocating to its rate classes the
8 classified costs using various demand-related and customer-related allocation factors.¹⁰
9 Delmarva's allocation factors are listed and described in Schedule (EPT)-4, which is
10 reproduced on pages 67-8 of Exhibit KRP-2. In this cost study Delmarva has
11 incorporated modifications that reflect four of the DE PSC Docket No. 09-414 Class
12 Cost of Service Workshop initiatives: (1) weather normalized sales and revenues, (2)
13 updated system losses, (3) estimated service line installation costs used to allocate
14 Account 369 – Service Lines, and (4) traffic signal service differentiated from street
15 lighting service.¹¹

16 **Q. WERE YOU ABLE TO DETERMINE WHETHER ANY OF THE**
17 **ADJUSTMENTS TO THE TEST YEAR PROPOSED BY DELMARVA**
18 **SUBSTANTIALLY AND/OR DISPROPORTIONATELY IMPACT ANY**
19 **CUSTOMER CLASSES, COST FUNCTIONS, AND/OR CLASSIFICATIONS?**

20 A. Yes. Proposed Adjustment 26 “Proforma Forecasted Reliability Closings” representing

⁹ Tanos at 4, line 12 to 12, line 18.

¹⁰ Tanos at 4, line 12 to 6, line 4.

¹¹ Tanos at 7 line 20 to 8, line 23.

1 the addition of \$66.8 million to plant in service would substantially impact the cost study
2 results. Because Staff witness Peterson has rejected this adjustment, its impact on the
3 cost of service does not need further examination.

4 **Q. DO YOU HAVE ANY CRITICISMS OF THE CLASS COST STUDY?**

5 A. Yes. The fundamental principle underlying class cost studies is that the direct
6 assignment and allocation of costs to the various customer classes should reflect as
7 accurately as possible the cost-causative impact of each class on the distribution system.
8 I have reviewed the study and found that in three instances the study does not comport
9 with this principle: (1) the study only apparently functionally separates underground and
10 overhead facilities; (2) the study's demand allocators do not reflect diversity at the load
11 center level, and (3) the study employs four composite allocators that use an arbitrary
12 50/50 weighting of other allocators.

13

14 **Q. WHAT IS THE ISSUE WITH REGARD TO UNDERGROUND AND**
15 **OVERHEAD FACILITIES?**

16 A. While Delmarva properly functionalizes underground and overhead facilities
17 separately,¹² it then uses the same demand allocator for both underground and overhead
18 facilities, effectively undoing the separate functionalization. Underground and overhead
19 facilities, however, have significantly different cost characteristics and typically are used
20 in different proportions by residential and commercial customers. Because commercial
21 customers generally make greater use of underground facilities, and because

¹² NARUC Manual at 89.

1 underground facilities are significantly more costly than overhead facilities, the use of
2 the same allocator generally over allocates costs to the residential classes and under
3 allocates costs to commercial classes. This is of concern because over allocation of
4 costs to a class produces an understatement of class return, while under allocation
5 produces an overstatement of class return. Delmarva uses class rates of return as the
6 basis to distribute its revenue requirement. If the rate of return of a class is understated,
7 the revenue requirement distribution will overstate that class's cost contribution and the
8 rates for that class will recover from the class more than its cost-causative share of the
9 costs.

10 **Q. WHAT IS THE ISSUE WITH REGARD TO DEMAND ALLOCATORS?**

11 A. The selection and development of an accurate demand allocator for each voltage level
12 and functional type of facilities is an empirical matter, depending on the amount of
13 diversity on the facilities to be allocated.¹³ The diversity on each functional type of
14 facilities and voltage level is a function of (1) how a utility actually plans and deploys its
15 facilities and (2) the actual distribution of customers served by the facilities. As a
16 general matter, diversity declines from a maximum on transmission facilities to zero at
17 the individual customer service. In practice, the actual amount of diversity on any given
18 facilities will fall somewhere between zero measured by maximum customer demand
19 and the maximum measured by coincident peak demand. Delmarva's demand allocators
20 arbitrarily assume zero diversity,¹⁴ whereas it is extremely unlikely that the actual

¹³ NARUC Manual at 96-98 and 100-101.

¹⁴ PSC-COS-29 and 30.

1 diversity on the facilities is zero. An allocator that inaccurately measures the diversity
2 on the facilities will result in an under allocation to some classes and over allocation to
3 others. Unlike the underground/overhead issues, however, it is not possible to surmise
4 as to the classes that are likely to be favored and disadvantage. Without actually
5 determining the class diversity on Delmarva's facilities, one can only conclude that cost
6 responsibility is not accurately reflected in the study that uses allocators that effectively
7 assume zero diversity.

8
9 **Q. WHAT IS THE ISSUE WITH REGARD TO COMPOSITE ALLOCATORS?**

10 A. The issue is similar to the one I just discussed in that it involves an arbitrary assumption
11 about cost causality on Delmarva's distribution system.. Delmarva uses two demand-
12 related allocators and two customer-related allocators that are composite, i.e., they are
13 calculated as the simple average or 50/50 weighting of two cost metrics.¹⁵ The demand
14 allocators DEMSEC and DEMTRNSF are 50/50 weightings of the demand cost metrics
15 Class MDD and Customer NCP. The customer allocators CSERV and CSALES are
16 50/50 weightings of the customer cost metrics Customer Number and MWH Sales. For
17 the allocation of costs that are a function of two cost drivers the use of composite
18 allocators is appropriate. Rarely, however, do the two drivers have equal impact on the
19 costs to be allocated and to assume so, as Delmarva does, simply introduces another
20 source of inaccuracy. For example, because some of Delmarva's transformers serve
21 single customers and others serve multiple customers, Delmarva arbitrarily uses a

¹⁵ See Exhibit KRP-2, pages 67-8.

1 simple average, 50/50 split, of its single customer demand cost metric and class demand
2 metric to allocate transformer cost responsibility.¹⁶ It is extremely unlikely, however,
3 that half of Delmarva's transformers serve single customers and half serve multiple
4 customers. It is extremely unlikely that an arbitrary 50/50 weighting of the two demand
5 metrics will accurately reflect the actual class cost responsibility for transformers.

6 **Q. ARE YOU ABLE TO DEVELOP ACCURATE DEMAND ALLOCATORS?**

7 A. No, but Delmarva can. I requested in discovery information with which to develop
8 accurate allocators. Delmarva responded in each case that it either did not have the
9 information or would be required to undertake an extensive analysis to produce the
10 information.¹⁷ Given, as I discuss below, that class rate of return is an appropriate basis
11 for developing class revenue requirement distribution and given that accurate demand
12 allocation to the classes is required to determine class rate of return, Delmarva should
13 undertake to develop demand allocators that more accurately reflect class cost
14 responsibility for the demand-related facilities in Delmarva's distribution system.

15 **Q. WHAT DO YOU RECOMMEND REGARDING DELMARVA'S CLASS COST**
16 **STUDY?**

17 A. Delmarva is currently using the information in its Geospatial Information System (GIS)
18 to more accurately identify and separate its primary voltage and secondary voltage
19 facilities for class cost of service purposes.¹⁸ The GIS information when combined with
20 the individual customer specific demand data that Delmarva collects from its now fully

¹⁶ PSC-COS-30 and PSC-EPT-10 and 11.

¹⁷ PSC-COS-27 and 29-34.

¹⁸ PSC-COS-18, 22 and 26.

1 deployed AMI meters, can be used to develop extremely accurate demand allocators for
2 Delmarva's distribution system. I recommend that the Commission direct Delmarva to
3 develop accurate demand allocators to be used in the class cost of service study
4 submitted in Delmarva's next rate case.

5 **Q. WHAT IS YOUR ASSESSMENT OF THE CLASS COST OF SERVICE**
6 **STUDY?**

7 A. Given the concerns discussed above, there is no basis to conclude that the class cost
8 study accurately allocates demand costs to the rate classes. Consequently there is no
9 foundation that can be relied on to recommend the resulting class rates of return as a
10 basis for class revenue requirement distribution.

11 **RATE DESIGN: REVENUE REQUIREMENT DISTRIBUTION**

12 **Q. WHAT ARE DELMARVA'S REVENUE REQUIREMENT DISTRIBUTION**
13 **PROPOSALS?**

14 A. Delmarva's revenue requirement distribution proposals are presented by Delmarva
15 witness Santacecilia's Schedule (MCS)-1, pages 1-2. I have included Schedules (MCS)-
16 1 in Exhibit KRP- 3. Ms. Santacecilia correctly states that the goal of rate design is to
17 produce rates that accurately reflect the underlying costs of service.¹⁹ To that end she
18 distributes the revenue requirement to the rate classes using the Unitized Rate of Return
19 (UROR) approach whereby the revenue requirement is distributed to the customer
20 classes so as to move towards producing the same rate of return for each class.²⁰

¹⁹ Santacecilia at 2, line 23 to 3, line 13.

²⁰ Santacecilia at 3, lines 14-20 to 4, line 7.

1 Because in this case the unadjusted UROR would result in significant shifts in the
2 allocation of revenue requirements and have large inter-class rate impacts, she proposes
3 to limit the revenue inter-class revenue shift by taking a two-step bandwidth approach.
4 In this approach rate classes with URORs outside a band width of 0.90 to 1.10 of the
5 total UROR are, in the first step, distributed revenue requirement sufficient to move
6 them inside the band and then, in the second step, any remaining revenue requirement is
7 distributed equally among all the classes.²¹ Consistent with the principle of gradualism,
8 the results of this two-step approach are constrained by limiting the increase to any
9 given rate class to 150 percent of the overall increase.²² This final constraint on inter-
10 class rate impacts is the same constraint that Ms Santacecilia applied in Delmarva's
11 application in Docket No. 11-528. Table 1 below shows the resulting revenue
12 requirement distribution and effective distribution percentages.

²¹ Santacecilia at 3, line 20 to 4, line 8.

²² Santacecilia at 4, lines 8-10; Schedule MCS-1.

TABLE 1 – Delmarva Proposed Revenue Distribution

| Service Classification | Delmarva Proposed Revenue Increase | Percent |
|-------------------------------|---|----------------|
| R | 16,554,698 | 39.4 |
| RSH | 10,737,216 | 25.5 |
| RTOU-ND | 11,192 | - |
| SGS-S | 966,297 | 2.3 |
| GS-SH | 46,643 | 0.1 |
| GS-WH | 2,029 | - |
| MGS | 3,079,851 | 7.3 |
| LGS-S | 1,601,299 | 3.8 |
| GS-P | 7,031,654 | 16.0 |
| GS-T | 114,790 | 0.3 |
| OL | 1,895,429 | 4.5 |
| ORL | 2,659 | - |
| Total | 42,043,566 | 100 |

Q. WHAT IS YOUR ASSESSMENT OF DELMARVA'S REVENUE REQUIREMENT DISTRIBUTION PROPOSALS?

A. The constrained two-step bandwidth approach proposed is conceptually appropriate and consistent with the principles of cost-causation and gradualism. The application of the approach is premised on the assumption that the class cost study accurately reflects class cost causation. There are, as I discussed above, and also discuss in detail below as regards class rate structure, significant questions about the accuracy of the class cost study.

Q. WHAT IS YOUR RECOMMENDATION REGARDING REVENUE REQUIREMENT DISTRIBUTION?

A. Given the flaws I identified above and the possibility that the class cost study understates the residential class rate of return, it is an exercise in specious precision to

use the UROR to distribute the revenue requirement. Moreover, there is no theoretical economic requirement that all classes produce the same rate of return, which is the underlying assumption of the UROR procedure. In unregulated companies, individual products and lines of business do not produce exactly the same return. I recommend that the Commission should reject Delmarva's proposed revenue requirement distribution. It is in the distribution of the revenue requirement that the Commission implements policy decisions with regard to rate impacts on specific customer classes. The existing class revenue distribution among the classes reflects past Commission policy decisions in this regard. Delmarva's UROR proposal places 65% of the proposed revenue requirement on the residential class compared to its current revenue distribution of 60%. I recommend that any revenue requirement increase or decrease resulting from this case be distributed to the classes based on the current revenue distribution.

TABLE 2 - Staff Proposed Revenue Distribution

| Service Classification | Current Revenue | Percent |
|-------------------------------|------------------------|----------------|
| R | 78,543,446 | 43.2 |
| RSH | 30,901,274 | 17.0 |
| RTOU-ND | 53,099 | - |
| SGS-S | 8,295,954 | 4.6 |
| GS-SH | 400,444 | 0.2 |
| GS-WH | 17,423 | - |
| MGS | 26,441,450 | 14.5 |
| LGS-S | 7,597,332 | 4.2 |
| GS-P | 19,983,768 | 11.0 |
| GS-T | 423,715 | - |
| OL | 9,286,420 | 0.5 |
| ORL | 22,826 | - |
| Total | 181,967,151 | 100 |

1 **RATE DESIGN: RATE STRUCTURE**

2 **Q. WHAT ARE DELMARVA'S RATE STRUCTURE PROPOSALS?**

3 A. Delmarva's rate structure proposals are presented by Delmarva witness Santacecilia's
4 Schedules (MCS)-1, pages 3-15 and (MCS)-2.²³ As regards actual rate structure, Ms.
5 Santacecilia proposes (1) to continue Delmarva's current customer/demand charge
6 structure for its LGS-S, GS-P and GS-T service classifications and (2) to continue
7 Delmarva's current customer/delivery (volumetric) charge rate structure for the RES,
8 RSH SGS-ND and MGS service classifications.²⁴ While Ms. Santacecilia does not
9 specifically discuss it in her testimony, Delmarva is also proposing for most rate classes
10 a significant shift of costs to the customer charge. These shifts are shown on page 3 of
11 Schedule (MCS)-1.²⁵

12 **Q. WHAT IS YOUR ASSESSMENT OF DELMARVA'S PROPOSALS?**

13 A. In the final analysis proper rate design, by which I mean both the rate structure and
14 revenue requirement distribution, is a matter of policy that seeks a fair balance of the
15 interests and incentives of the utility and its ratepayers. In practical terms, this means for
16 the utility that overall the rate design must be sufficiently reflective of actual cost
17 causation to provide it with a reasonable opportunity to earn what has been determined
18 by the Commission to be a fair return on its investment. Thus, the first question is
19 whether the rate design is based on an accurate assessment of cost causation on the
20 utility's distribution system. Assessed from this standpoint, the proposed rate design

²³ Exhibit KRP-3.

²⁴ Santacecilia at 5, lines 4-23.

²⁵ Exhibit KRP-3.

1 fails with regard to rate structure because for more than half of the customer classes
2 there is no component for demand that is a major driver of distribution facilities costs.²⁶
3 Instead, there is a volumetric component which is not a driver of distribution facilities
4 costs. Ms. Santacecilia acknowledges and discusses this failing at length in her
5 testimony.²⁷ As a consequence, Delmarva's tariff charges for the RES, RSH, SGS-ND
6 and MGS service classifications do not reflect the actual costs incurred in providing
7 service.

8 From the ratepayer's perspective, the issue is the same but much narrower and more
9 specific: does the rate design for the individual ratepayer's class accurately reflect the
10 value of the service consumed by the ratepayer as determined by the Commission's rate
11 design policies? The answer is no for three reasons. First, for more than half of the
12 customer classes there is no component for demand, which is a significant component of
13 the individual ratepayer's consumption of distribution service. Second, the proposed
14 rate design fails with regard to revenue requirement distribution to the classes because
15 the class cost study's flaws, as discussed above, call into question the class rates of
16 return. Third, those same flaws in the cost study make the class customer and demand
17 costs that underlie the proposed rate component charges unsupportable.

18 **Q. IN DELMARVA'S LAST RATE CASE, DOCKET 11-528, DELMARVA**
19 **PROPOSED A MODIFIED FIXED VARIABLE (MFV) RATE DESIGN THAT**

²⁶ NARUC Manual at 89.

²⁷ Santacecilia at 4, line 16 to 5, line 23.

1 **ADDRESSED THE VOLUMETRIC CHARGE ISSUE. IS DELMARVA**
2 **PROPOSING A SIMILAR RATE DESIGN IN THIS CASE?**

3 A. No. Ms. Santacecilia testifies that because the MFV rate design has not been approved
4 by the Commission it has not been included in this case.²⁸

5 **Q. DO YOU PROPOSE A CUSTOMER/DEMAND COMPONENT RATE**
6 **STRUCTURE IN THIS CASE?**

7 A. No. The design and implementation of a customer/demand charge rate structure for
8 Delmarva's distribution system requires (1) full deployment of AMI on Delmarva's
9 distribution system so that individual customers demand can be measured for both
10 rate design and billing purposes, (2) at least a full year's worth of Delmarva's
11 customer demand data with which to design the class specific rate structures and
12 charges, and (3) integration of the AMI demand data with Delmarva's billing system.
13 It is my understanding that, while Delmarva has now completed deployment and
14 testing of AMI on its distribution, it has not yet collected the data necessary to design
15 such a rate structure. My recommendation regarding a customer/demand charge rate
16 structure for Delmarva is that the Commission direct Delmarva to begin collecting the
17 AMI demand data necessary for the design of a customer/demand rate structure and,
18 once the data is collected, propose a rate design in its next base rate electric case that
19 includes a MFV method of cost recovery.

20 **Q. WHAT DO YOU RECOMMEND REGARDING DELMARVA'S RATE**
21 **STRUCTURE PROPOSAL?**

²⁸ Santacecilia at 6, lines 11-18.

1 A. I recommend that the Commission accept Delmarva's proposed rate structure. The
2 significant increases to the customer charge component of the rates effectively
3 constitute a transitional step towards a customer/demand rate structure.,

4 **Q. HAVE YOU CALCULATED RATES USING STAFFS RECOMMENDED**
5 **REVENUE REQUIREMENT INCREASE AND YOUR RECOMMENDED**
6 **REVENUE REQUIREMENT DISTRIBUTION?**

7 A. Yes. I have distributed Staff witness Peterson's revenue deficiency of \$11,442,413 to
8 Delmarva's rate classification using the percentages from Table 2 and calculated the
9 individual rate components for each class using Delmarva's proposed rate structure.
10 The calculations are contained in Exhibit KRP-4 and summarized in Table 3.

11 **TABLE 3 – Staff Proposed Rates**

| Service Classification | Customer Charge | Energy Charge | Demand Charge |
|-------------------------------|------------------------|---|----------------------|
| R | 12.28 | 0.028267 | |
| RSH | 12.28 | 0.022224 | |
| RTOU-ND | 17.90 | 0.046933 on peak 0.005653 off peak | |
| SGS-ND | 11.94 | 0.046160 | |
| GS-SH | 5.60 | 0.019895 | |
| GS-WH | 5.60 | 0.020210 | |
| MGS-S | 45.78 | 0.003341 | 4.515368 |
| LGS-S | 202.66 | | 4.419830 |
| GS-P | 472.25 | | 3.370031 |
| GS-T | 3,049.50 | | 0.102055 |
| ORL | 11.94 | 0.031943 | |

12
13 In Exhibit KRP-5 I have also calculated a billing comparison for these rates in the
14 same format as Schedule (MCS)-2. A typical residential customer using an average

1 of 1,000 kWh per month would see a bill increase of \$1.99 or 1.41%.²⁹

2 **Q. DOES THIS CONCLUDE YOUR TESTIMONY?**

3 **A. Yes.**

²⁹ Exhibit KRP-5, page 3.